APPENDIX J

Small Geometry Pads and System for Wireless Power Supply

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Background

Although the system described in previous co-pending provisional application titled "Enhanced Contact Systems For Surfaces And Devices" filed 09/25/2002, Attorney Docket No. 6041.P009z, application no. 60/413,791, of which this disclosure is related, is very useful, sometimes only certain aspects of its novel art are required in a low-end, limited-usage application. In particular, for very inexpensive, low-end devices, it may be wasteful to integrate a full system into the basic product.

What is clearly needed in such cases is a simplified, basic pad that allows the user to start with a low-cost minimum solution, but also allows system upgrades at a later time.

Description of the Embodiment

Figure 1 shows a mobile electronic device, such as a mobile telephone 110. It has two contact zones 111a and 111b, as described in the previous co-pending applications. Instead of a full pad with many zones, in this case the system has only a small pad 100 with only two contact zones, 121a and 121b. Power supply 123 may be a very basic power supply, or even the standard power supply of current art that is sold with the device 110. It may have only limited capabilities or even only capabilities to operate that one single device. In some cases, such a small pad can be integrated in a larger equipment such as car dashboard, furniture, treadmills, etc.

The user simply puts the phone 110 down onto pad 100, thus establishing an electrical circuit.

Figure 2 shows the phone 110 on pad 100. It is clearly visible that phone contacts 111a and 111b are aligned with pad contacts 121a and 121b. The angle omega 222 between device main axis and the pad main axis does not have to be exactly zero degrees. Omega 222 may be 10 degrees, 20 degrees, or even as great as 45 degrees. In some cases, it can also be rotated by 180 degrees in addition to the slight angles mentioned above.

In some cases, pad 100 may be bounded by a small frame (not shown) to limit the range of omega

222. That frame may have an opening to accommodate protruding features that are characteristics of the device, such as the antenna, so that placing the device in the frame with the protruding features in the corresponding opening would also restrict the omega 222, without, at the same time, requiring precise insertion, as would typically be required when a device such as phone 110 is inserted into a charging cradle (not shown) of the type used in current art.

Figure 3 shows another embodiment of the novel art of this disclosure. Phone 310 may have two or three contacts 311a, 311b, and, optionally, 311b . Circular pad 300 has a center contact zone 321a, an outer contact ring 321b, and a no-contact zone 321c, which lies between zones 321a and 321b. Pad 300 is connected by wire 322 to power supply 323 (may be the same as power supply 123), which in turn plugs in to main ac power source 324.

As shown in Figure 4, in most cases, the phone 310 may be casually set down onto pad 300. Due to the circular nature this embodiment, there is no limit to the omega 422 of alignment of the phone with the pad. Pad 300 may in some cases have a raised edge at its outer perimeter to force the phone into correct contact with the pad; however, there may be a gap of a few millimeters (a quarter-inch to a half-inch) allowing convenient, sloppy application, rather than requiring precise positioning, as is generally required with insertion of a device into a power connector or cradle in current art.

In some cases, due to the small nature of these pads, a plastic clip-on or slip-on cover (not shown) may be used that has openings for the contact pads, allowing the user to customize the look and possibly the feel of the pad. Options could include different colors, flags, transparency, rubbery or fuzzy coatings, etc.

In some cases even additional lighting effects (not shown) may be offered, such as blue pulsing during charge, low-level blue when trickle charging, red flashing when mis-connected, etc. Alternatively, the light color could change to indicate the level of charge, much as some a fuel gauges indicate the fuel level, starting with red or orange ("empty") and thence progressing to yellow, green and finally blue (everything is "cool"). In some cases the lighting effects and other functions may be added by the user as a plug-in option into an existing, basic passive pad.

Further, many modifications and/or additions may be made without departing from the spirit of the invention. For example, in many cases, typically, a power supply may have a current limit or other

protection mechanism, so the pad may be completely passive, to satisfy safety requirements.

Further, in some cases, because a device may have a dc/dc regulator able to accept a wide range of voltages, no issues would occur if there were no exact match. In yet other cases, devices may have a protection mechanism that would pass the power to the device only when the voltage and current are in range, as described earlier in previous applications. In yet other cases, a device may include an automatic polarity routing (e.g., active or passive rectifier bridge). The attached appendices A, B, C, D, E, F, G, H, and I are incorporated herein by reference.

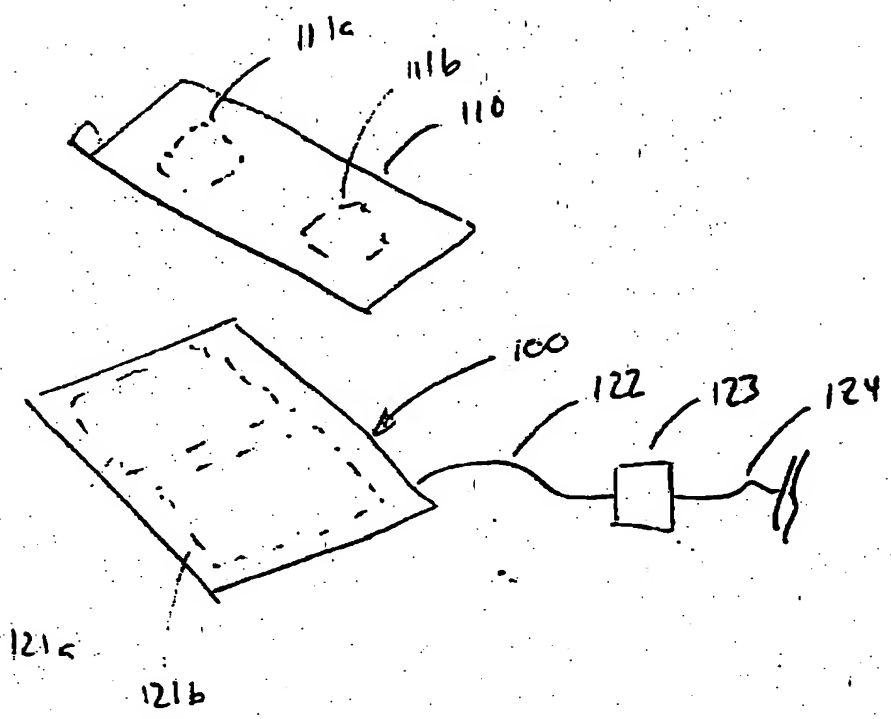

Fig. 1

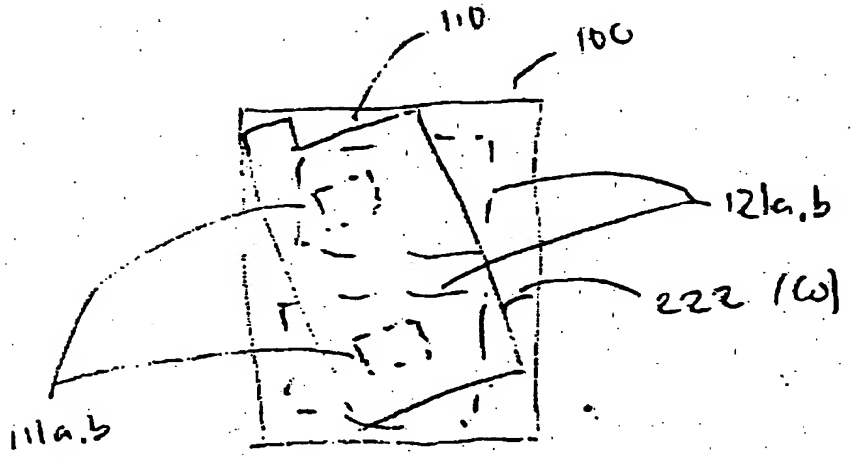

Fig. 2.

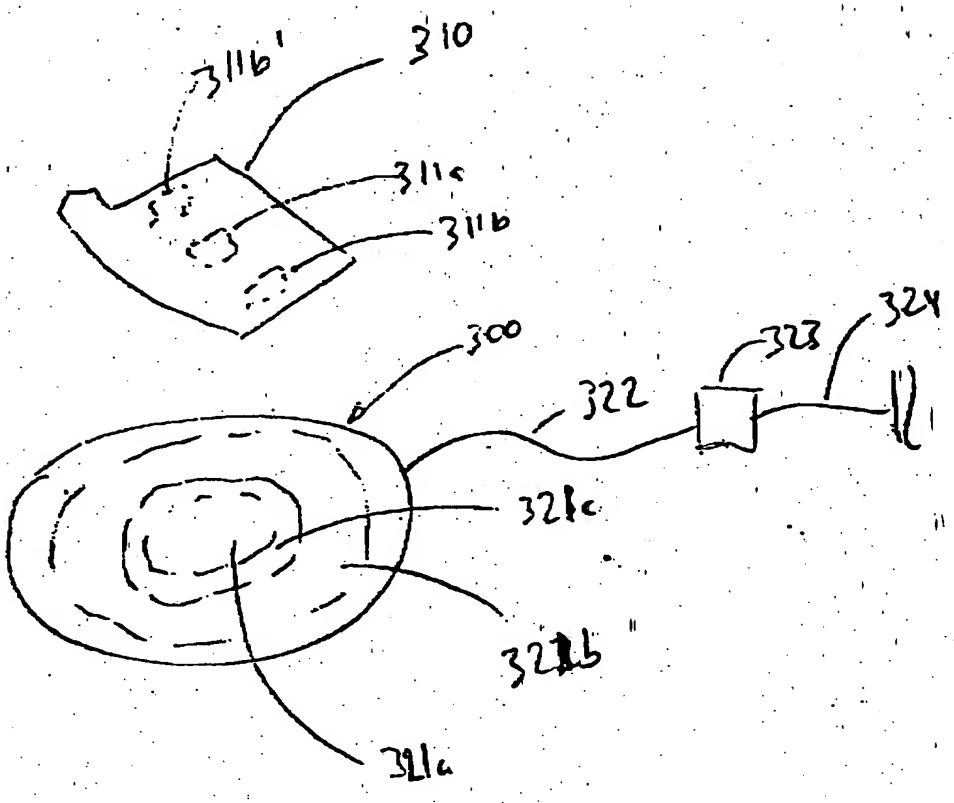

Fig. 3

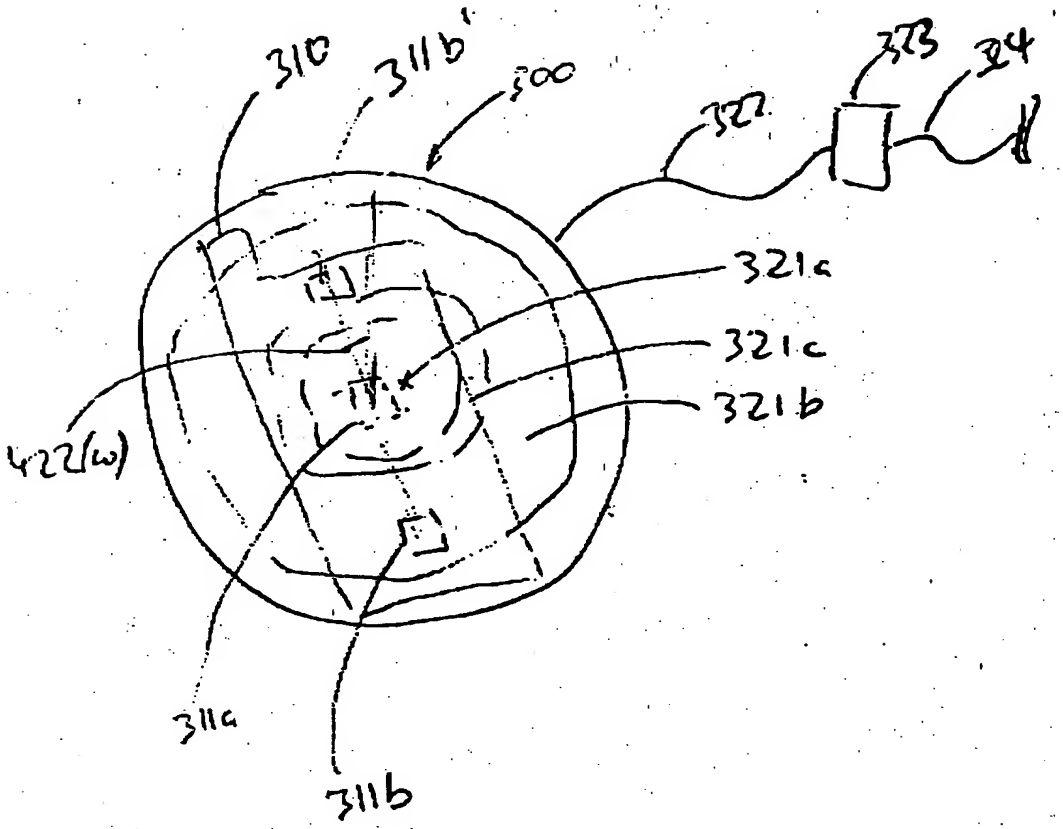

Fig 4.